

# **Appendix A**

## **Responsiveness Summary**



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### **A.1 Overview**

Operable Unit 5-05 is within Waste Area Group 5 of the Power Burst Facility/Auxiliary Reactor Area at the INEL. The unit comprises the SL-1 burial ground and surrounding area. Operable Unit 6-01 is within Waste Area Group 6 of the Experimental Breeder Reactor-I/Boiling Water Reactor Experiment at the INEL and comprises the BORAX-I burial ground and surrounding area. Both of these operable units are described in the Record of Decision to which this Responsiveness Summary is attached. Due to the similarities of the two operable units, they were investigated together. A proposed plan was released April 28, 1995, with a public comment period from May 3 to June 3, 1995. The preferred alternative recommended in the proposed plan is containment by capping with an engineered long-term barrier comprised primarily of natural materials. This Responsiveness Summary recaps and responds to the comments received during the comment period. Generally, the comments reflect a broad range of views, from strong support for the selected alternative to opposition and support for Alternative 3, Removal and Disposal.

### **A.2 Background on Community Involvement**

In accordance with CERCLA §113(k)(2)(B)(i-v) and 117, a series of opportunities for public information and participation in the remedial investigation and decision process for the SL-1 and BORAX-I burial grounds were provided to the public from September 1994 through May 1995. For the public, the activities included receiving fact sheets that briefly discussed the investigation to date, *INEL Reporter* articles and updates, a proposed plan, an availability session and public meetings. A few members of the public received telephone briefings

In September 1994, a kickoff fact sheet concerning the SL-1 and BORAX-I remedial investigation/feasibility study was sent to about 6,700 individuals of the general public and to 650 INEL employees on the INEL Community Relations Plan mailing list. The fact sheet contained a postage-paid comment form to solicit early public input on the investigations.

The investigations were discussed at informal semiannual briefings in Twin Falls (October 11, 1994), Pocatello (October 13, 1994), Moscow (October 18, 1994), Boise (October 19, 1994), and Idaho Falls (October 20, 1994). During these briefings, representatives from the DOE and INEL discussed the projects with members of the community, answered questions, and listened to public comments.

Regular reports concerning the status of the project were included in the *INEL Reporter* and mailed to those who were on the mailing list. Reports also appeared in two Citizens' Guides.

In April 1995, a fact sheet concerning the project was sent to about 6,700 individuals of the general public and 650 INEL employees on the INEL Community Relations Plan mailing list. On April 11, 1995, the DOE issued a news release to more than 100 news media contacts concerning the beginning of a 30-day public comment period, which began May 3, 1995 and ended June 3, 1995, pertaining to the proposed plan for SL-1 and BORAX-I. Many of the news releases resulted in a short note in community calendar sections of newspapers and as public service announcements on radio stations. Both the fact sheet and news release gave notice to the public that documents for SL-1 and BORAX-I would be available before the beginning of the comment period in the Administrative Record section of the INEL Information Repositories located in the INEL Technical Library of Idaho Falls, the INEL Boise Office, as well as in public libraries in Idaho Falls, Fort Hall, Pocatello, Twin Falls, Boise, and the University of Idaho Library in Moscow. Also, table top displays were set up at the Grand Teton Mall in Idaho Falls (May 15-20), Burley Public Library (April 24-May 5), Twin Falls Public Library (May 5-26), Boise Towne Square Mall (April 29), and the Pocatello City Building (April 24-May 15).

Opportunities for public involvement in the decision process for SL-1 and BORAX-I were provided beginning in May 1995. For the public, the activities ranged from receiving the proposed plan, conducting one teleconference call, and attending open houses and public meetings to informally discussing the issues and offering verbal and written comments to the agencies during the 30-day public comment period.

Copies of the proposed plan for the burial grounds were mailed to about 6,700 members of the public and 650 INEL employees on the INEL Community Relations Plan mailing list on April 28, 1995, urging citizens to comment on the proposed plan and to attend public meetings. Display advertisements announcing the same information and the location of public meetings on May 16, 17, and 18, 1995, in Idaho Falls, Boise, and Moscow, respectively, appeared in seven major Idaho newspapers. All of the public meetings were held on the scheduled days. Large advertisements appeared in the following Idaho newspapers on April 26: Post Register (Idaho Falls); Idaho State Journal (Pocatello); South Idaho Press (Burley); Times News (Twin Falls); Idaho Statesman (Boise); Lewiston Morning Tribune (Lewiston); and The Daily News (Moscow).

Personal calls were made to stakeholders in Idaho Falls, Pocatello, Twin Falls, Boise, and Moscow the week of May 8 and 15 to remind individuals about the meetings. A post card was mailed on May 10, 1995, to about 6,700 members of the public and 650 INEL employees on the INEL Community Relations Plan mailing list to encourage them to attend the public meetings and provide verbal or written comments. Both media, the news release and newspaper advertisements, gave public notice of public involvement activities and offerings for briefings, and the beginning of a 30-day public comment period that was to begin May 3 and run through June 3, 1995.

Written comment forms, including a postage-paid business-reply form, were made available to those attending the public meetings. The forms were used to turn in written comments at the meeting, and by some, to mail in comments later. The reverse side of the meeting agenda contained a form for the public to evaluate the effectiveness of the meetings. A court reporter was present at each meeting to record transcripts of discussions and public comments. Transcripts from the three public meetings were placed in the Administrative Record section for the SL-1 and BORAX-I burial grounds, Operable Units 5-05 and 6-01, in five INEL Information Repositories. A total of about 10 people attended the public meetings. Overall, eight provided formal comment; of these eight people, three provided oral comments and five provided written comments. For those who did not attend the public meetings but wanted to make formal written comments, a postage-paid comment form was attached to the proposed plan. All comments received on the proposed plan were considered during the development of this Record of Decision.

This Responsiveness Summary has been prepared as part of the Record of Decision. All formal verbal comments, as given at the public meetings, and all written comments, as submitted, are included in the Administrative Record for the Record of Decision. Those comments are annotated to indicate which response in the Responsiveness Summary addresses each comment. The Record of Decision presents the preferred alternative for the project, selected in accordance with CERCLA, as amended by the Superfund Amendments and Reauthorization Act and, to the extent practicable, the National Oil and Hazardous Substances Pollution Contingency Plan. The decision for this operable unit is based on information contained in the Administrative Record.

### **A.3 Summary of Comments with Responses**

Comments and questions raised during the public comment period on the SL-1 and BORAX-I burial grounds proposed plan are summarized below. The public meetings were divided into an informal question-and-answer session and a formal public comment session. The meeting format was described in published announcements and meeting attendees were reminded of the format at the beginning of each meeting. The informal question-and-answer session was designed to provide immediate responses to the public's questions and concerns. Several questions were answered during the informal question-and-answer period during the public meetings on the proposed plan. This Responsiveness Summary does not attempt to summarize or respond to issues and concerns raised during that part of the public meeting. However, the Administrative Record contains complete transcripts of these meetings, which include the agencies' responses to these informal questions.

Comments received during the formal comment session of the meeting were addressed by the agencies in this Responsiveness Summary. The public was requested to provide their comments in writing, verbally during the public meetings, or by recording a message by calling the INEL's toll-free number. Seven written comments were received and 12 verbal comments were offered during the public meetings. This Responsiveness Summary responds to those comments.

1. **Comment:** One commenter asked what the maximum doses are regardless of time, at least to 10,000 years, and how these compare to the maximum dose limits of Nuclear Regulatory Commission and the DOE for an unrecognized abandoned radiation waste disposal facility.

**Response:** The annual dose was estimated for the SL-1 and BORAX-I burial grounds based on the residential intrusion scenario beginning 30 years in the future. This scenario was selected because it represents the "maximum dose" at the time of earliest possible public access to either site.

Selection of this exposure scenario from the 10 scenarios modeled in the baseline risk assessment represents the highest risk to the public and is also consistent with the proposed plan.

Risk spreadsheets generated for the baseline risk assessment provided the starting point for the estimation of dose. Radionuclides posing a risk less than 1 in 10,000,000 for a given pathway were screened from this evaluation as insignificant contributors to the total dose. The methodology, including formulae, source terms, and dose conversion factors used to estimate annual dose rates, is presented in the technical memorandum titled *Dose Conversions for the SL-1 and BORAX-I Burial Grounds*, and can be found in the Administrative Record for Operable Units 5 and 6.

Results of the calculations for the 30-year residential intrusion scenarios are summarized below. A limit of 25 mrem/yr for members of the public has been established by the Nuclear Regulatory Commission and by the DOE.

**Table A-1.** Estimates of dose for the 30-year residential intrusion scenario.

Site	Pathway	Estimated Annual Dose Rate
		(mrem/yr)
SL-1	External exposure	34,000
	Soil ingestion	69
	Dust inhalation	0.31
	Groundwater ingestion	0.043
	<b>Total (2 significant digits)</b>	<b>34,000</b>
BORAX-I	External exposure	1,800
	Soil ingestion	7.0
	Dust inhalation	0.14
	Groundwater ingestion	0.64
	<b>Total (2 significant digits)</b>	<b>1,800</b>

2. **Comment:** Two commenters feel that models used for groundwater fate and transport must be benchmarked and validated before we can proceed with action or no action.

**Response:** GWSCREEN was the groundwater modeling code used to estimate groundwater concentrations and potential risks due to groundwater ingestion. This code was designed to EPA and IDHW specifications to address conditions and uncertainties pertinent to the INEL. Worst case upper bounds

of concentrations and risks were generated by using EPA and IDHW approved default input parameters defined for evaluating Track 2 sites (sites about which little is known, and low risk is expected). The code has been validated by benchmarking against the PORFLOW and GRDFLX codes, both of which are well known and accepted codes in groundwater modeling. GWSCREEN results were within 5% of both PORFLOW and GRDFLX results. Further information regarding the development, validation, and benchmarking of GWSCREEN can be found in the following documents which are available in the Administrative Record for Operable Units 5-05 and 6-01.

Rood, A. S. and R. C. Arnett, J. T. Barraclough. Contaminant Transport in the Snake River Plain Aquifer: Phase I, Part 1: Simple Analytical Model of Individual Plumes" EGG-ER-8623, May 1989.

Matthews, S. D., "Software Configuration Management Plan for Controlled Code Support System", EGG-CATT-10196, April 1992.

Rood, A. S., "Software Verification and Validation Plan for the GWSCREEN Code", EGG-GEO-10798, May 1993.

Smith, C. S. and C. A. Whitaker, "Independent Verification and Limited Benchmark Testing of the GWSCREEN Computer Code, Version 2.0", GEE-GEO-10799, June 1993.

Rood, A. S., "GWSCREEN: A Semi-Analytical Model for Assessment of the Groundwater Pathway from Surface or Buried Contamination Theory and User's Manual Version 2.0", EGG-GEO-10797, June 1994, Revision 2.

Rood, A. S., "GWSCREEN: A Semi-Analytical Model for Assessment of the Groundwater Pathway from Surface or Buried Contamination: Theory and User's Manual", EGG-GEO-10158, March 1992.

DOE, Track 2 Sites: Guidance for Assessing Low Probability Hazard Sites at the INEL, DOE/ID-10389, January 1994, Revision 6.

3. **Comment:** One commenter requested information regarding the water transport time from the surface to the aquifer, and flow rate in the aquifer used in the groundwater modeling. The commenter also inquired about the extremes examined in the uncertainty analysis, what kind of uncertainty analyses were done, and the resultant extremes of dosage imposed by the more significant radionuclides in the aquifer plumes from SL-1 and BORAX-I.

**Response:** Vadose zone water travel times used in the evaluation were 18 years for SL-1 and 66.3 years for BORAX-I. The GWSCREEN model (see comment #2) uses water travel times estimated using only sediment thicknesses in the vadose zone. Water travel time through the basalts was neglected because describing water movement through the basalts in the vadose zone is not scientifically well-defined. Neglecting the travel time through basalt results in conservative estimates. The average linear water velocity in the aquifer was specified as 570 m/yr for both facilities.

A parametric sensitivity/uncertainty analysis was performed for both SL-1 and BORAX-I for those parameters that were thought to most significantly affect the results. Sensitivity calculations were done only for the radionuclides with the highest estimated groundwater risk at each facility boundary using base case parameters. The radionuclides were technetium-99 for SL-1 and U-234 for BORAX-I. Parameters varied in the analysis were: infiltration rate, vadose zone sediment thickness, sediment moisture content, distribution coefficient, aquifer porosity, aquifer dispersivity, and well-screen thickness. Each parameter was varied over a range and only one parameter was varied at a time, except infiltration rate and moisture content which were related through the moisture characteristic curve for the sediment.

Vadose zone water travel times for base case calculations as well as minimum and maximum values investigated as part of the sensitivity/uncertainty analysis are shown in Table A-2. The minimum and maximum vadose zone water travel times were a result of varying the vadose zone thickness or infiltration rate.

**Table A-2.** Minimum and maximum vadose zone water travel times (years) considered in the sensitivity/uncertainty analysis.

Facility/Location	Base Case Value	Minimum Value	Maximum Value
SL-1	18	10.2 <sup>a</sup>	54.4 <sup>b</sup>
BORAX-I	66.3	42.5 <sup>a</sup>	156 <sup>c</sup>

- a. Using minimum value of vadose zone sediment thickness and base case infiltration.
- b. Using maximum value of vadose zone sediment thickness and base case infiltration.
- c. Using minimum value of infiltration rate and base case vadose zone sediment thickness.

The average linear groundwater velocity was not varied as part of the sensitivity/uncertainty analysis because the burial ground boundary receptor is so close to the source that the concentration and corresponding risk values are relatively insensitive to changes in this parameter. The term average linear groundwater velocity is the average speed traveled by water in the aquifer, and is often referred to as aquifer pore velocity.

The results of the sensitivity/uncertainty analysis were presented as a percent change from the base case peak groundwater concentration. This comparison can be extended to risk because the relationship between concentration and risk is linear. For SL-1, the changes in concentration ranged from a minimum of 19% (of base case concentration) using the maximum well screen thickness (vertical mixing zone) to a maximum of 301% (of base case concentration) using the minimum aquifer dispersivities. For BORAX-I, the changes ranged from a minimum of 8% to a maximum of 970%. Both of these are the result of using the minimum and maximum distribution coefficients. A more complete discussion of the sensitivity/uncertainty analysis as well as a discussion of the effect of each parameter and assumption can be found in Appendix C, Section C-5, of the remedial investigation/feasibility study report.

Because annual dose due to groundwater ingestion is insignificant (see Comment #1), sensitivity analyses to generate the extremes of dose by radionuclide, as requested by this commenter, were not generated.

4. **Comment:** One commenter requested more information regarding potential contaminant plumes and stated that cumulative impacts from various facilities must be considered to at least 10,000 years in the future, not contributions from individual sites for only 100 or 1,000 years. Specific questions included "Will the SL-1 contaminant plume in the aquifer overlap the plume from BORAX-I?", and "Will these plumes overlap the plume from the previously evaluated RWMC Pad A?"

**Response:** It is unlikely that potential groundwater plumes from SL-1 and BORAX-I will overlap and cause significant concentrations. Figure 1 in the Record of Decision shows the locations of the INEL site boundary receptors for SL-1 and BORAX-I. These locations were determined based on the regional groundwater flow direction which is to the southwest. Radionuclide concentrations from both SL-1 and BORAX-I were predicted to decrease several orders of magnitude by the time they reached the INEL site boundary receptors. It is doubtful that the plumes would overlap on the INEL unless there were an uncharacteristically large degree of spreading. Any plume overlap would likely occur off the INEL site. At that point, the additive concentrations of any plume overlap would be much less than those predicted at the burial ground boundary, facility boundary, and probably the INEL site boundary. Nevertheless, overlap of plumes will be considered in the sitewide groundwater assessment in conjunction with the Waste Area Group 10 remedial investigation/feasibility study.

The possibility of potential groundwater plumes from other facilities was not evaluated. It is likely however, that a plume from BORAX-I would overlap a plume from Pad A given the relatively close proximity of the two sites. Any impact of overlaps will be evaluated in Waste Area Group 10.

The peak radionuclide groundwater concentrations were calculated irrespective of any time frame. Several radionuclides were predicted to take more than 10,000 years to reach the aquifer. For conservatism, the peak groundwater concentrations of each radionuclide were assumed to occur at the same time for each receptor.

5. **Comment:** One commenter wanted to know how the requirements of 40 CFR 193, particularly 10,000 year disposal requirements, and the Low-Level Waste Policy Act of 1985 are being met for these two sites, described by the commenter as "inactive disposal sites for spent fuel, transuranic waste, greater than Class C waste, and low-level waste."

**Response:** The preproposal draft of 40 CFR 193 states explicitly that "The management and storage standards are not intended to apply to remedial actions at LLW facilities which were closed prior to the effective date of 40 CFR part 193...". The draft acknowledges that it may be years before 40 CFR 193 is finalized. 40 CFR 193 does not qualify as an ARAR until it becomes law.

Capping of the two burial grounds does, however, satisfy the intent of the preproposal draft. The draft states that "The only practical method of reducing the radiation hazard from LLW is to isolate it from people and the environment until the radioactivity has decayed," and the proposed standards should consider "...the protection provided by the engineered and natural barriers of a disposal system." The caps will be designed to prevent human or environmental exposure to the wastes for 400 years at SL-1 (when the external exposure risk will reach  $1E-04$ ) and 320 years at BORAX-I (when the long-lived uranium-235 becomes the primary risk contributor at  $2E-04$ ).

In terms of possible intrusion into the waste, the draft states that "the standards have not been devised to protect individuals who purposefully or inadvertently farm on the superjacent land or penetrate into the waste. They do apply outside the area delineated by permanent markers and in records of government ownership." It is anticipated that these restrictions will be specified in the remedial design phase which follows the signing of this Record of Decision.

The EPA proposes a standard of 15 mrem committed effective dose per year (equivalent to a fatal cancer risk of  $5E-04$ ) to the public, outside of the area delineated by permanent markers and recorded government ownership. Shielding provided by the caps will be adequate to keep exposures below 15 mrem/yr above background.

The commenter referred to disposal requirements for spent fuel, transuranic waste, and greater-than-Class C waste. The wastes buried at both SL-1 and BORAX-I do not meet the definition of these waste types. All wastes associated with the SL-1 and BORAX-I burial grounds are considered low-level waste. The following paragraphs clarify this point.

Spent nuclear fuel is defined in DOE Order 5820.2A (Radioactive Waste Management), Attachment 2, as "Fuel that has been withdrawn from a nuclear reactor following irradiation, but that has not been reprocessed to remove its constituent elements." Neither the SL-1 or BORAX-I reactor operated for long enough to achieve burn-up to the design core lifetime prior to destruction of the facilities. Thus, the fuel never became "spent".

Transuranic waste is defined in DOE Order 5820.2A, Attachment 2, as "Without regard to source or form, waste that is contaminated with alpha emitting transuranium radionuclides with half-lives greater than 20 years and concentrations greater than 100 nCi/g at the time of assay." The concentrations of transuranium radionuclides at SL-1 are estimated to be in the pCi/g range and no transuranium radionuclides were identified as contaminants of concern at BORAX-I. Thus, no transuranic wastes exist at either burial ground.

A comparison of the radionuclide concentrations associated with the SL-1 and BORAX-I burial grounds with Class C waste determination criteria revealed that no waste containing concentrations in excess of Class C levels exists at either site. This determination is based on the assumption of uniform distribution of contaminants throughout the estimated volume. Therefore, it is possible

that localized areas of higher concentrations could exceed Class C criteria. However, based on the comparison performed, contaminant concentrations are below the lower end of the Class B criteria range.

All the waste associated with both burial grounds does meet the definition of low-level waste, as defined in DOE Order 5820.2A, Attachment 2:

“Waste that contains radioactivity and is not classified as high-level waste, transuranic waste, or spent nuclear fuel or 11(e) byproduct material as defined by this Order. Test specimens of fissionable material irradiated for research and development only, and not for the production of power or plutonium, may be classified as low-level waste, provided the concentration of transuranic is less than 100 nCi/g.”

Therefore, only low-level radioactive waste management and disposal requirements are considered relevant to the SL-1 and BORAX-I burial grounds.

The commenter also referenced disposal requirements specified in the Low-Level Waste Policy Act of 1985. The act specifically excludes low-level waste owned or generated by the DOE. DOE Order 5820.2A specifies requirements for managing and disposing DOE owned and generated low-level waste. This DOE Order specifies that inactive sites such as SL-1 and BORAX-I be managed in conformance with CERCLA, which is the process currently being undertaken. The Order does not specify retrofitting such inactive sites to meet the requirements that would apply for new or operating disposal facilities.

6. **Comment:** One commenter calls the reports “excellent and interesting” but thinks cost estimates are too high, especially for construction management and contractor overhead and profit. The commenter states that competitive bidding on a fixed price design that is simple and clear should reduce estimated costs by 25 to 50%.

**Response:** Cost estimates for the alternatives analyzed were developed for comparison purposes only, and will not likely reflect the actual cost of implementing the selected alternative. The cost estimates were developed on the basis of a preliminary conceptual design, and therefore have omitted many specific details of the alternatives that were not well defined. These specific details are accounted for within a contingency cost element included in each estimate. However, the commenter judged the estimates as being excessive by 25 to 50 percent. This evaluation by the commenter is consistent with CERCLA guidance for preparing such cost estimates, which calls for accuracy within the range of -30 to +50 percent.

The commenter specifically identified Construction Management and Contractor Overhead & Profit costs as being “very high”. These cost elements are computed on a percentage basis. The percentage rate used was developed from INEL-specific construction cost history.

Costs were refined in preparation for public meetings with the EM Site-Specific Advisory Board-INEL. These refined estimates include additional specific items, such as foundation preparation and acquisition and transportation of materials, thus reducing the contingency factor percentage. These refinements result in estimates of \$1.97 million for SL-1 and \$1.45 million for BORAX-I. Although these estimates are better than those that appeared in the proposed plan, they are still fairly rough. Anticipated actual costs can not be presented until remedial design is complete.

7. **Comment:** Three commenters expressed opinions that Alternative 2 is the best choice.

**Response:** The agencies agree that Alternative 2, containment by capping with an engineered barrier comprised primarily of natural materials, is the preferred alternative based on effectiveness, cost, and the other evaluation criteria discussed in the proposed plan and Record of Decision. Consequently, this alternative appears in the Record of Decision as the selected remedial action for both the SL-1 and the BORAX-I burial grounds.

8. **Comment:** Two commenters favor Alternative 3. One commenter felt that Alternative 2 would leave us vulnerable to natural disasters, vandalism, or cutbacks in monitoring. The other commenter was worried that the INEL, being situated above the Snake River Plain Aquifer and in an earthquake sensitive area, is "a disaster awaiting its own fulfillment."

**Response:** The excavation and removal discussed in Alternative 3 does return the sites to natural conditions; however, this remedy essentially moves the problem from one location to another within the INEL with significant risks to workers and the public and at very high cost. This action would only forestall a timely decision regarding the final disposition of the wastes and would not alleviate the commenters' concerns. The prediction regarding "a disaster awaiting its own fulfillment", refers to events such as earthquakes and other natural disasters. A very small probability exists that such events could occur; therefore design features such as slope minimization will be evaluated and incorporated into the engineered covers as determined appropriate during the Remedial Design phase.

9. **Comment:** One commenter stated that the Special Power Excursion Reactor Test I reactor program was also concluded with a destructive test similar to the BORAX-I experiment. The commenter concludes that this experiment must also have resulted in contaminated debris and soil, and wanted to know why it is not included in any proposed clean-up plan.

**Response:** The Special Power Excursion Reactor Test I facility was decommissioned in 1964. The reactor pit was demolished in 1985 and the site returned to its original state. No known contaminated debris remains at the site. The Power Burst Facility reactor was built just north of the Special Power Excursion Reactor Test I location, and the facility is now known as the Power Burst Facility Reactor Area. The only two remediation sites identified within this facility are a seepage pit (site code PBF-11) and a leach pond (site code PBF-12). Both have received no further action recommendations.

10. **Comment:** One commenter expressed the opinion that taxpayers money is being wasted by producing publications and expending funds on "low risk projects."

**Response:** The SL-1 and BORAX-I burial grounds can not be considered low risk projects in view of the risks estimated in the baseline risk assessment and summarized in the proposed plan. In response to Superfund guidance and the *INEL Community Relations Plan*, the agencies have directed that program funds be used to communicate information concerning the investigations to the public. The preparation of the *INEL Reporter*, fact sheets, and proposed plans are traditional methods of updating citizens on project specifics. The object of these publications is to describe how the agencies are approaching the work outlined in the Federal Facility Agreement and what new information is learned about the sites. The invitation for citizens to interact with the agencies concerning this process is an important part of finding out what citizens think of the agencies' recommendations. The result of interaction between the public and the agencies is the formulation of a decision that considers the issues raised by citizens through a fair and reasonable process.

11. **Comment:** One commenter stated that trials should be conducted to determine if scraping surface soils and extracting the uranium-235 results in recovery of significant amounts of uranium. If successful, the method should be applied more extensively at the sites because recovery of the uranium would return it to secure storage and reduce the long-term impacts from these sites.

**Response:** The commenter referred to the use of technologies which could be used to extract uranium-235 from surface soils if soils were scraped from the areas surrounding the burial grounds. The technology being referred to is called "soil washing". This technology has been demonstrated for the removal of uranium from soil, but was not considered for application at either SL-1 or BORAX-I. As described in Section 11, the surface soil associated with the SL-1 burial ground will not require remedial action. In addition, uranium was not identified as a contaminant of concern in SL-1 surface soils. This technique for BORAX-I is described below.

The effectiveness of soil washing is dependent on site-specific soil characteristics and the chemical behavior of contaminants in the environment. Soil washing studies performed at the Hanford site indicated that uranium would typically be concentrated in the smaller soil size fractions (silts and clays). Therefore, removal of uranium from BORAX-I soils would initially require separation into specific soil size fractions such as gravel, sand, silt, and clay. The larger soil size fractions, gravel and sand, would then be analyzed and either returned to the site or treated, depending on the results of the analysis. If necessary, mechanical agitation or scrubbing would be used to physically remove uranium from the surfaces of the larger size soil fractions. The smaller soil size fractions, most likely to contain the majority of uranium, would then be leached by a chemical extractant such as sulfuric acid. Studies have shown such leaching processes can reduce uranium concentrations in the smaller soil size fractions to levels between approximately 20 and 70 parts per million. The chemical extractant and wash water would require additional treatment to remove uranium extracted from the soils.

Separating uranium from the soil surrounding BORAX-I is not considered feasible based on the extremely low concentrations anticipated in the surface soils, and the small mass of uranium actually contained in the soil. Scraping contaminated surface soils would result in considerable mixing of the existing gravel cover and the clean soil immediately beneath the contaminated soil. Assuming the entire mass of unrecovered uranium at BORAX-I, about eight pounds (3.7 kilograms), is uniformly distributed throughout the 84,000 square feet of potentially contaminated soil area, removal of the top foot of soil and gravel from this area would result in a maximum uranium concentration of one part per million. For the sake of argument, assuming the smaller soil size fraction represented 20 percent of this volume and was effectively separated by the initial soil washing stage, then a maximum of only five parts per million could be obtained. Assuming the entire eight pounds (3.7 kilograms) were distributed in a much smaller area, perhaps one-sixth the entire 84,000 square feet, the uranium concentration would be approximately six parts per million. If the smaller soil size fraction represented 20 percent of this volume and were effectively separated by the initial soil washing, then a maximum of 30 parts per million could be obtained. Such low concentrations would not be amenable to effective leaching in the final stage of the soil washing process.

Soil washing could be effective for removing larger particles if the majority of uranium were not in the form of uniformly distributed fine particles. However, historical documentation indicates the fuel fragments (larger particles) were collected from the surface soils and the majority of remaining contamination interred in the reactor foundation. Therefore the actual mass of uranium in the BORAX-I surface soils is probably significantly less than the unrecovered eight pounds (3.7 kilograms).

The focused remedial investigation/feasibility study performed for SL-1 and BORAX-I was based on remedial actions identified in previous CERCLA Records of Decision, and although soil washing technology exists and is currently in use under the EPA Superfund Innovative Technology Evaluation Program, the technology has not been specified for use in previous CERCLA Records of Decision involving radionuclide contaminated soils.

12. **Comment:** One commenter suggested that selection of an alternative should be deferred until the methods and costs associated with the Pit 9 action are available. The commenter felt the cost estimates for SL-1 and BORAX-I and the decision for these two sites could change if some of the waste could be processed through the Pit 9 treatment facilities.

**Response:** The situation at Pit 9 is sufficiently different from that at the SL-1 and BORAX-I burial grounds to eliminate the possibility of similar treatment. The limited production tests at Pit 9 are directed at transuranic wastes in concentrations greater than 10 nanocuries per gram; wastes at the SL-1 and BORAX-I burial grounds are described in terms of picocuries, three orders of magnitude smaller. In addition, Pit 9 wastes include hazardous substances and some mixed waste, unlike the SL-1 and BORAX-I burial grounds where radionuclides are the only contaminants of concern. Preliminary information regarding cost and effectiveness of the limited production tests being performed for the Pit 9 treatments will not be available before January, 1997. The agencies do not

anticipate that delaying this remedial action until the Pit 9 cost and effectiveness data are available will alter their preference for capping the sites as described in Alternative 2 of the proposed plan.

13. **Comment:** One commenter stated that partial cleanup including ground scraping and removal of contamination in excess of 10 CFR 61 Class A limits should be considered as an additional alternative.

**Response:** Removal of contaminated surface soil is a potential aspect of the final remedial design phase. Three potential options for disposition of contaminated surface soils surrounding the burial grounds were identified in the remedial investigation/feasibility study. These options include:

- No action or restricted access
- Removal followed by disposal at Radioactive Waste Management Complex
- Consolidation near the location of buried waste for inclusion beneath the protective cover.

10 CFR 61 defines the criteria under which the Nuclear Regulatory Commission issues licenses for land disposal of radioactive waste. The disposal at the SL-1 and BORAX-I burial grounds took place prior to the effective date of 10 CFR 61, so the licensing requirements do not apply.

14. **Comment:** Two commenters indicated that future land use scenarios should be established before decisions are made so that exposure scenarios could be determined on the basis of realistic projected land use.

**Response:** The INEL is in the process of establishing land use scenarios for areas surrounding Site facilities. Certain areas may be designated for future industrial land use; these scenarios will be used to form the basis of risk calculations in the future. In the meantime, the agencies have decided to take the cautious approach to protect workers, the public, and the environment by applying the most protective land use scenarios in current risk assessments.

15. **Comment:** One commenter expressed the opinion that results of capping studies from the old dairy farm and other studies should be used in this evaluation.

**Response:** INEL-specific research involving capping design has been included in the preliminary conceptual designs of the caps evaluated for SL-1 and BORAX-I. The Environmental Science and Research Foundation is currently conducting cap design experiments at the INEL. These experiments, called the Protective Cap/Biobarrier Experiments, focus on "low-cost, natural systems to effectively isolate municipal, industrial, and low-level radioactive wastes and contaminated soil surfaces from the environment, for centuries." The results obtained thus far in the experiments were incorporated in the Uranium Mill Tailings Remedial Action type cap design presented in the remedial investigation/feasibility study report. This included a 5-foot (1.6-m) soil layer for water balance, a 1.5-foot (45-cm) rock/cobble layer in combination with a 1-foot (30-cm) gravel layer for

biotic control. During the remedial design phase, such INEL-specific information will be included in the final cap design.

16. **Comment:** One commenter demands that Alternative 3 be selected for SL-1 and BORAX-I and that no further out-of-state shipments of radioactive waste be "allowed to be deposited there".

**Response:** Alternative 3 is the removal of wastes from the burial ground with disposal at the INEL's Radioactive Waste Management Complex. Removal and disposal only relocates the contamination within the INEL at a high cost and potentially high risk to workers and the public; it does not eliminate the problem. Alternative 2, covering and controlling the contamination through time while radioactive decay decreases the risk, is a safer and more cost-effective approach. The SL-1 and BORAX-I sites have never received waste shipped into the state from other sources. To receive information or ask questions concerning possible transportation of waste to the INEL from out-of-state, citizens can call the INEL's toll-free number, 1-800-708-2680, to request additional details and assistance.

17. **Comment:** One commenter suggested that "debris treatment" should be utilized to reduce volumes of mixed waste.

**Response:** Mixed wastes have not been identified at either burial ground. Also see responses 11, 12, and 13.

18. **Comment:** One commenter asked what considerations to reduce volumes of contaminated soils were being exercised.

**Response:** Under the preferred alternative, capping with an engineered barrier, contaminated surface soils will be consolidated at BORAX-I based on field screening and sample data acquired during the remedial design phase of the remedial action. No other applicable minimization efforts have been identified.

## **A.4 Comment and Response Index**

Because comments are summarized in the Responsiveness Summary for response, an index is included to assist in identifying responses to specific comments. All oral comments, as received at the public meetings, and all written comments are included verbatim. Each comment is coded with a W, meaning a written comment, or a T for an oral comment transcribed during the public meetings. Seven people submitted written comments and three rendered oral comments during the meeting. A total of 19 comments were received.

To locate a response to a specific comment, identify the comment on the index, note the associated response number and page number, and turn to that response in the Summary of Comments and Responses in Section A.3.

**Table A-3.** Index of comments.

Code	Response Number	Comment	Page Number
W-1	7	Alternative 2 is adequate.	A-11
W-2	6, 7	Excellent & interesting reports. Cost estimates seem high! I agree with the preferred alternatives. Estimated costs for capping landfills seem very high; if design is simple and clear, I think competitive bidding (fixed price) should reduce estimated costs shown here in by (25 to 50) %. In particular, const. mg't & contractor ov'h'd & profit seem very high compared to the direct "Construction of Cap" costs. Possibly this is due to high liability insurance costs, or other job risk costs that I am not familiar with. At any rate, I recommend "working" the cost reduction possibilities very hard.	A-10
W-3	9	The SPERT I reactor program was also concluded with a destruct test which occurred in the early to mid 1960s, similar to the BORAX-I destruct test. The SPERT I destruct test must have resulted in contaminated debris and soil. Why is SPERT I not included in any proposed clean-up plan?	A-11
W-4	10	Why do you continue to waste taxpayers \$. Your publications plus the expenditures directed towards low risk projects are a total waste. You guys are out-of-control.	A-12
W-5	8	I favor Alternative 3 as the only permanent solution for decontamination of the SL-1 and BORAX-I sites. I fear that Alternative 2 would leave us vulnerable to natural disasters, vandalism, or cutbacks in monitoring in the long run.	A-11
W-6	8, 16	The INEL, being situated above the Snake River Aquifer and in an earthquake sensitive area, is a disaster awaiting its own fulfillment. I demand that Alternative 3 be instated and that no further out-of-state shipments of radioactive waste be allowed to be deposited there.	A-11 A-15
W-7	14, 17, 18	<ul style="list-style-type: none"> <li>• Utilize "debris treatment" for reducing vol. of mixed waste</li> <li>• Closure goals must be established considering future "land use" criteria</li> <li>• DOE must establish "land use" criteria for the INEL</li> <li>• What considerations are being exercised to minimize volume of contaminated soils to be disposed.</li> </ul>	A-14 A-15
T-1	2	There's been a lot of discussion on these plumes, and what might reach the groundwater. Of course, that's one of the major things that the citizens of the State of Idaho are concerned about. I heard tonight that it was going to be 10,000 years before the heavy metals, U-235 would reach the groundwater by modeling by a code named GWSCREEN. My understanding is there's been very little benchmarking of these codes done. Last summer there was what was called the aquifer stress test to try and do some benchmarking. There's been considerable work to validate codes - we've heard about the NRC - to validate computer codes to make sure that they predict what's right. The codes that are being used at the INEL are not benchmarked. They are not validated. And I think we're getting the cart before the horse on this and going out and taking actions before we really know what we've got as far as contaminants. Let's get some good computer codes. Let's get some good modeling. I see fate and transport modeling in here. And again, it's the old adage of "garbage in, garbage out." And I think that's what we've got here. We don't know the ion exchange of these metals between the soil. Conservative values most largely are being used, but there's a lot of unknowns, and there needs to be some overall benchmarking of those computer codes that are being used similar to what the NRC has done with the RELAP models, the Skadat (sic) (TRAC?) models. We talk about us spending huge sums of money on reactor safety, and we're talking about risk here supposedly, according to the EPA of 5 in 10,000. This is much greater than what the NRC is saying you're going to have from some of these spare reactor accidents. So let's get some codes validated and benchmarked, and then let's proceed with what we have - either a No Action or Alternative Actions.	A-6
T-2	2	I heartily agree with what's just been said when it comes to the need for the improvements that he's (Robert Wadkins, comment T-1). There's certainly a real need there.	A-6
T-3	11	According to DOE's reports regarding remediation of these sites, considerable uranium-235 remains unrecovered - about two pounds at the SL-1 site and about eight pounds at the BORAX-I site. Because of U-235's very long half-life, as a practical matter it will never decay away, and there is enough there to make one or more nuclear weapons. With today's improved equipment, scraping an inch or two of topsoil from the ground surface and passing the scrapings and any other appropriate excavated soil through soil decontamination equipment and a heavy metal particle separation device could probably recover a considerable amount of the uranium and other radionuclides for disposition elsewhere. And before replacing more cover material, it appears that this should be tried on a limited scale and used more extensively if the trials prove successful. Removal of uranium-235 will not only restore this uranium to secure storage, it will also decrease these sites' long-term impacts that will not be reduced appreciably during the limited lifetime of an engineering barrier.	A-12
T-4	3	What water transport time (from the surface to the aquifer) and what flow rate in the aquifer were used in the evaluation? Since these are uncertain, what extremes were considered in the uncertainty analyses? What kind of uncertainty analyses were done, and what were the resultant extremes of dosage imposed by the more significant radionuclides in the aquifer plumes from SL-1 and BORAX-I?	A-7

Table A-3. (continued)

Code	Response Number	Comment	Page Number
T-5	4	Will the SL-1 contaminant plume in the aquifer overlap the plume from BORAX-1? Will these plumes overlap the plume from the previously evaluated RWMC Pad A? (Pad A is downstream from BORAX-1 and SL-1. And for Pad A, DOE previously concluded that a cap will be installed over about 18,000 55-gallon drums and 2,000 4x4x7 foot boxes of alpha-contaminated Rocky Flats waste that is to be left buried there.) My concern is the combined impact of these on a future member of the public since it is the combined impact on the maximally exposed individual that counts. And this combined impact is what should be considered in deciding what to do about the waste at each disposal site. In addition, the following locations emit plumes that may overlap the plumes from SL-1 and BORAX-1 and Pad A: waste buried from 1984 through the end of RWMC waste disposal operation, the Test Reactor Area, the Idaho Chemical Processing Plant, and the portion of the RWMC that was used for rad waste disposal from 1952 to 1984. The impact of all of the plumes that overlap should be considered in reaching a conclusion regarding the appropriate remediation action for waste at any one of the locations. Moreover, the extent of time in the future that should be addressed should not be restricted to a relatively short time period like 100 years or 1,000 years but should extend much further to at least 10,000.	A-9
T-6	5	These sites are essentially inactive disposal sites for spent fuel, transuranic waste, greater than Class C waste, and low level waste. There are laws against disposal of such waste - that is, 40 CFR 193 and the Low Level Waste Policy Act of 1985 - unless the waste can be shown to be adequately confined for at least 10,000 years. How are these requirements accounted for?	A-9
T-7	1	Considering the Nuclear Regulatory Commission scenarios regarding a future inadvertent intruder onto an in-future abandoned waste disposal site - that is, the well drilling scenario, basement excavation and home construction, farming and excavation and discovery of buried articles - what would be the maximum dosage to such an intruder at the times of maximum dosage regardless of how far these are in the future? Or at least to 10,000 years? How do these dosages compare with DOE and NRC dosage limits for a future inadvertent intruder onto an unrecognized abandoned rad waste facility?	A-6
T-8	12	The planned cleanup of Pit 9 could provide experience-derived information on which to base cost estimates for cleaning up the SL-1 and BORAX-1 sites. And changes to their cost estimates could influence the decision regarding which remediation alternative to pursue. Consideration should be given to deferring the final decision regarding these issues until Pit 9 cleanup has progressed sufficiently to permit better assessment of the methods and costs that should be involved in their cleanup. Also possibly some of the waste generated in these cleanups could best be prepared for disposal by processing them through the Pit 9 treatment facilities.	A-14
T-9	13	The Site Disposition Alternatives considered apparently only one involving waste removal - removal of all contaminated materials, the most expensive of all. Partial cleanup involving the above mentioned ground scraping plus removal of materials contaminated beyond 10 CFR 61 Class A limits deserves consideration as an alternative. Such a partial cleanup could substantially reduce the very long half-lived portion of these sites' radioactivity plumes in the aquifer and their impacts on future inadvertent intruders, and the cost should be substantially less than that of total cleanup.	A-14
T-10	14	I still have a question on the land use and the industrial scenario, and I think that any further action or closing out or accepting of any alternatives be delayed until we get a land use plan for the INEL so we know where we're going and what we're going to do with it. The one in ten scenario - again I believe on the industrial, the risk scenario, I believe there's a direct exposure driving that, and it's a direct exposure to an individual with no capping, no asphalt, or something like that. I believe it needs to be a realistic scenario on the industrial scenario, and that factors again into this land use. I think that we're just sitting here spinning our wheels and perhaps spending a lot of money along with the wheel spinning if we proceed with some of these alternatives before we've got a land use plan in place for these areas that we're considering tonight, and perhaps even the total INEL. The soil consolidation variables that were mentioned, I think that if you're picking up any contamination out there under the EPA criteria, if you're going to say that it's going to be exposed and there's no cover on it, you're going to have to consolidate the soil. I don't think you've got any choice with the cesium-137 out there.	A-14
T-11	15	The other question I have, is there's a number of studies going on various capping things on what was called the old dairy farm out there. I don't know what those studies are called, but they've done a number of studies and looking at animals burrowing into the soil and things like that. I think those should be factored in. Here there's a lot of research going on out there, and I keep seeing these things and none of it factored in here. Here we're proposing some things that of capping and that - let's use what work we've done and what research we've done out there.	A-15
T-12	7	Looking at and having read this and having a pretty good grasp about the natural sciences, having degrees in it, I think the Containment Number 2 would be in my opinion the Preferred Alternative in this situation. I think that No Action is - I think that we created this mess in our lifetime, we need to clean up this mess in our lifetime. I don't think we need to leave it for future generations. Plus I think that there is a good possibility that we could have airborne particulate activity with this thing as far as with wind erosion, and that is really what I'm mostly concerned about in this situation, in all of these sites, really, is the possibility of having wind erosion take place. I think that in any of these sites I would prefer that nothing that is contaminated is ever touched again and everything is left in place. I you're going to mound on top of it sufficient weight where the shaking of the earthquake - I mean, there is a fault line that is running through this area - you wouldn't worry about it sloughing off and creating even a larger problem than is already there. I think it'll indicate to whoever happens upon it in the future generations, it will indicate to them that this wouldn't be a proper place to put a foundation for a home or put a garden in. Whether we are able to communicate to those future generations or not, in 400 years Lord knows where we'll be as far as the human race, we all know that, so that's about all I have to say about that.	A-11

# **Appendix B**

## **Administrative Record File Index**



**Idaho National Engineering Laboratory  
Administrative Record File Index for the Track 2 Scoping of the  
ARA-II SL-1 Burial Ground OU 5-05 and 6-01  
6/26/95**

**File Number**

**AR1.1      Background**

- Document #: EGG-GEO-10068  
Title: A Modeling Study of Water Flow in the Vadose Zone beneath the RWMC  
Author: Baca, R.G.  
Recipient: N/A  
Date: 01/01/92
- \*Note: This Document is filed in the Pad A Administrative Record Binder  
Operable Unit 7-12 Volume I
- Document #: EGG-BG-9175  
Title: Independent Verification and Benchmark Testing of the Porflo-3 Computer  
Code, Version 1.0  
Author: Baca, R.G.  
Recipient: N/A  
Date: 08/01/90
- Document #: KJH-09-94  
Title: Interviews with Darrell Hanni Regarding the SL-1 Burial Ground  
Author: Holdren, K.J.  
Recipient: Halford, V.E.  
Date: 07/06/94
- Document #: 10022  
Title: Record of Meeting with Roger G. Jensen, U.S.G.S., Regarding Depth to Aquifer  
near BORAX-I/SL-1  
Author: VanDerpoel, G.  
Recipient: N/A  
Date: 02/17/94
- Document #: 10023  
Title: Record of Meeting with Dick Meservey, EG&G Idaho, Regarding BORAX-I  
Author: Tucker, J.  
Recipient: N/A  
Date: 02/17/94

**ARA-II SL-1 Burial Ground OU 5-05 and 6-01  
6/26/95**

**File Number**

**AR1.1**

**Background (continued)**

- Document #: 10024  
Title: Record of Meeting with Roger Wilhelmson, EG&G Idaho, Regarding Pipes in SL-1 Burial Ground  
Author: Meadows, G.  
Recipient: N/A  
Date: 04/15/94
- Document #: 10025  
Title: Record of Meeting with Eddy Chew, DOE-Idaho Regarding SL-1 Burial Ground Pipes  
Author: Meadows, D.  
Recipient: N/A  
Date: 04/14/94
- Document #: 10026  
Title: Record of Meeting with Glenn Briscoe, Regarding SL-1 Burial Ground  
Author: Meadows, D.  
Recipient: N/A  
Date: 01/25/94
- Document #: 10027  
Title: Record of Meeting with Craig Kwamme, LITCO, Regarding Basis for RWMC Disposal Costs  
Author: Vetter, D.  
Recipient: N/A  
Date: 12/02/94
- Document #: 10028  
Title: Memo of Conversation with Richard Green, Regarding Pipes in the SL-1 Burial Ground  
Author: Holdren, K.J.  
Recipient: N/A  
Date: 04/14/94
- Document #: 10133  
Title: Support Documentation: Estimation of Uranium-235 Surface Soil Concentrations Based on Mass Unrecovered at the BORAX-I Burial Ground  
Author: R. Filemyr  
Recipient: J. Holdren  
Date: 08/30/95
- Document #: 10134  
Title: Errata for the Remedial Investigation/Feasibility Study Report for Operable Units 5-05 and 6-01 (SL-1 and BORAX-I Burial Grounds)  
Author: R. Filemyr  
Recipient: N/A  
Date: 08/30/95

- Document #: 10135  
Title: Support Documentation: Annual Dose Calculation for Selected Scenarios at the SL-1 and BORAX-I Burial Grounds  
Author: R. Filemyr  
Recipient: J. Holdren  
Date: 08/30/95
- Document #: 10136  
Title: SL-1/BORAX-I Class C Waste Equivalency Determination  
Author: R. Filemyr  
Recipient: J. Holdren  
Date: 08/30/95

**ARA-II SL-1 Burial Ground OU 5-05 and 6-01  
6/26/95**

**File Number**

**AR1.7 Initial Assessments**

- Document #: 2984  
Title: ARA-06, ARA II SL-1 Burial Ground  
Author: N/A.  
Recipient: N/A  
Date: 09/15/86
- Document #: 2629  
Title: BORAX-02, BORAX-I Burial Site  
Author: N/A  
Recipient: N/A  
Date: 10/03/86

**AR3.8 Risk Assessment**

- Document #: MISC-94001  
Title: Preliminary Baseline Risk Assessment for the OU-5-05 and 6-01, SL-1 and BORAX-I Burial Grounds RI/FS  
Author: N/A  
Recipient: N/A  
Date: 10/01/93
- Document #: 5662  
Title: Overview of Exposure Scenarios for the Baseline Risk Assessment for the OU 5-05 and 6-01, SL-1 and BORAX-I Burial Grounds RI  
Author: N/A  
Recipient: N/A  
Date: 10/01/93
- Document #: INEL-95/103 Rev 2  
Title: ARA Windblown Area Risk Evaluation  
Author: D. Jorgensen  
Recipient: N/A  
Date: 09/07/95

- Document #: 10137  
Title: Assessment of Surface Soils Surrounding the SL-1 Burial Grounds  
Author: K. J. Holdren  
Recipient: N/A  
Date: October, 1995

**ARA-II SL-1 Burial Ground OU 5-05 and 6-01  
6/26/95**

**File Number**

**AR3.10 Scope of Work**

- Document #: EGG-ER-10998  
Title: Scope of Work for Operable Units 5-05 and 6-01 (SL-1 and BORAX-I Burial Grounds) Remedial Investigation Feasibility Study (RI/FS)  
Author: Halford, V.E.  
Recipient: N/A  
Date: 03/01/94

**AR3.12 Remedial Investigation/Feasibility Study**

- Document #: OPE-ER-157-94  
Title: Transmittal of the Draft Remedial Investigation/Feasibility Study Report for Operable Units 5-05 and 6-01 (SL-1 and BORAX-I Burial Grounds RI/FS); Volume 1 of 2  
Author: Lyle, J.L.  
Recipient: Pierre, W.; Nygard, D.  
Date: 06/15/94
- Document #: INEL-95/0027  
Title: Remedial Investigation/Feasibility Study Report for Operable Units 5-05 and 6-01 (SL-1 and BORAX Burial Grounds)  
Author: Holdren, K.J.; Filemyr, R.G.; Vetter D.W.  
Recipient: N/A  
Date: 03/01/95

**AR4.3 Proposed Plan**

- Document #: 10011  
Title: Proposed plan for Operable Units 5-05 and 6-01 Stationary Low-Power Reactor-1 and the Boiling Water Experiment-I Burial Grounds  
Author: DOE, EPA, IDHW  
Recipient: N/A  
Date: 05/01/95